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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/775,718

02/09/2004

Adlai Smith

38203-6082B

3857

33123

7590

06/15/2005

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EXAMINER

KOYAMA, KUMIKO C

ART UNIT

PAPER NUMBER

2876

DATE MAILED: 06/15/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

EJC

Office Action Summary	Application No. 10/775,718	Applicant(s) SMITH ET AL.	
	Examiner Kumiko C. Koyama	Art Unit 2876	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 March 2005.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 44-47 and 50 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 44-47 and 50 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 February 2004 is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Acknowledgement is made of receipt of Request for Reconsideration filed on March 21, 2005.

Drawings

1. New corrected drawings in compliance with 37 CFR 1.121(d) are required in this application because it includes hand-written figures and reference numbers. Applicant is advised to employ the services of a competent patent draftsman outside the Office, as the U.S. Patent and Trademark Office no longer prepares new drawings. The corrected drawings are required in reply to the Office action to avoid abandonment of the application. The requirement for corrected drawings will not be held in abeyance.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 44 and 50 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ausschnitt et al (US 5,805,290, as cited by the Applicant), herein Ausschnitt '290, in view of Tsuchiya (US 6,204,912, as cited by the Applicant).

Ausschnitt '290 discloses an apparatus for determining overlay error and an overlay target having array elements (Fig 18), and an optical metrology tool is used to measure the array of elements (col 10, lines 33-35). The target comprises four sets of alignment attributes. The first set of alignment attributes 140 is disposed along a first column (Fig 18). The second set of alignment attributes 142 is complementary to the first set of alignment attributes and is disposed along a second column distinct from the first column, wherein the alignment attributes in the first and second sets are aligned in corresponding rows (Fig 18). The third set of alignment attributes 134 is distributed along the first row between the first and second column (Fig 18). The fourth set of alignment attributes 132 is complementary to the third set of attributes and is disposed in a second row distinct from the first row, wherein the alignment attributes in the third and fourth sets are aligned in corresponding columns (Fig 18). Ausschnitt '290 also teaches that the second and fourth alignment attributes are complementary to the first and third alignment attributes, respectively, in that an exposure of the second and fourth alignment attributes interlock with a previous exposure of the first and third alignment attributes (Fig 18).

Ausschnitt '290 fails to disclose that the second reticle patter is shifted in a desired direction.

Tsuchiya teaches that the position of the reticle 102' shifts in a Y direction (col 14 lines 54-60).

Therefore, it would have been obvious to an artisan of ordinary skill in the art at the time the invention was made to integrate the teachings of Tsuchiya to the teachings of Ausschnitt '290 in order to position the reticle pattern so that the reticle pattern may be located at a desired location to facilitate the measurement of the overlay and provide a more accurate product.

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4. Claims 45 and 47 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ausschnitt '290 as modified by Tsuchiya in view of Dao et al (US 5,700,602, as cited by the Applicant). Ausschnitt '290 as modified by Tsuchiya have been discussed above.

Re claim 45 and 47: Ausschnitt '290 as modified by Tsuchiya fails to disclose that the reticle has reduced transmission.

Dao discloses an attenuated phase-shifting reticle that uses an embedded film, which is engineered to have a reduced transmission (col 2 lines 7-10).

In view of Dao, it would have been obvious to an artisan of ordinary skill in the art at the time the invention was made to employ the teachings of Dao to the teachings of Ausschnitt '290 as modified by Tsuchiya in order to minimize effects of diffraction, therefore resulting in more accurate reading of overlay measurement and improve the overlay alignment.

5. Claim 46 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ausschnitt '290 as modified by Tsuchiya and Dao as applied to claim 45 above, and further in view of Fukuda (US 5,262,257, as cited by the Applicant). Ausschnitt '290/Tsuchiya/Dao have been discussed above.

Ausschnitt '290/Tsuchiya/Dao fails to teach a reticle comprising a partially reflecting dielectric coating.

Fukuda discloses an alignment patten of a mask formed by a dielectric material film 36 (col 3 lines 32-34).

In view of Fukuda, it would have been obvious to an artisan of ordinary skill in the art at the time the invention was made to employ the teachings of Fukuda to the teachings of

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Ausschnitt '290/Tsuchiya/Dao as modified by Dao in order to reflect the light and acquire proper image of the patter for overlay alignment.

Response to Arguments

6. Applicant's arguments with respect to claims 44-47 and 50 have been considered but are moot in view of the new ground(s) of rejection.

In response to Applicant's arguments regarding claims 44 and 50 with respect to "second and fourth alignment attributes are complementary to the first and third alignment attributes, respectively, in that an exposure of the second and fourth alignment attributes interlock with a previous exposure of the first and third alignment attributes after the reticle has been shifted in a desired direction," the examiner has considered the limitation "shifted in a desired direction" and a new references has been added to show that it would have been obvious to shift the position of the reticle. See 35 USC 103 rejections above. On the other hand, the limitation of the reticle creating "an interlocking row or column" are included in the references cited in the previous action. For example, for claim 1, Fig 18 of Ausschnitt '750 shows the overlay targets with elements 152, 154, 156 and 158 are all inside the frame produced by elements 132, 134, 140 and 142. Elements 152, 154, 156 and 158 form a smaller frame or a square like shape, and as a whole and also in terms of individual elements, all of 152, 154, 156 and 158 are completely inside a bigger frame or square like shape, which the examiner interprets as "interlocking." All the pending claims having this "interlock" or "interlocking" limitation lacks further description or meaning of "interlock" or "interlocking." Therefore, the examiner is utilizing the broadest interpretation of the meaning "interlock," which is the limitation that Ausschnitt '750 meets.

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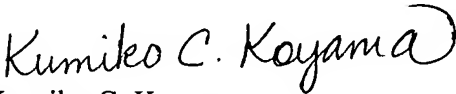
Arguments are moot in view of new grounds of rejection, and therefore, this action is non-final.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kumiko C. Koyama whose telephone number is 571-272-2394. The examiner can normally be reached on Monday-Friday 8am-4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael G. Lee can be reached on 571-272-2398. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Kumiko C. Koyama
June 13, 2005


DIANE I. LEE
PRIMARY EXAMINER